



Form GSOP 1-PIN (04/98)

STATE OF CALIFORNIA
Department of General Services - Office of Procurement

PURCHASE ORDER

Page 1

Purchase Order No. Rev. Date
62020 5/10/2008

Supplier No. 801847	Solicitation No. 56807	Delivery Date 60 Days ARO	FOB Point Destination	Invoice Terms
S DEPT. OF TOXIC SUBSTANCE h CONTROL i 700 HEINZ AVE. SUITE 100 p BERKELEY, CA 94710		C DEPT. OF TOXIC SUBSTANCES h CONTROL, ATTN: ACCOUNTS PAY a P O BOX 806 r SACRAMENTO, CA 95812-0806 o g e		
Agency Billing 82100		Agency Purchase Estimate 70099		Purchase Estimate Revision 67024 0
Agency Contact SUZANNE COTTLE		Phone 916-324-3751		Date Received

THERMO ELECTRON NORTH AMERICA
LLC
1400 NORTH POINTE PARKWAY
WEST PALM BEACH, FL 34407

Phone: 800-532-4752

Item No.	Quantity	Unit	Commodity Code	Description	Unit Price	Extension
<p>THE GENERAL PROVISIONS FOR NON-IT COMMODITIES ARE HEREBY INCORPORATED BY REFERENCE. THESE GENERAL PROVISIONS CAN BE OBTAINED BY PHONING (916) 375-4400 OR BY ACCESSING OUR WEBSITE AT: www.documents.dgs.ca.gov/pd/modellang/GPnonIT0407.pdf</p> <p>THE FOLLOWING INFORMATION IS PROVIDED FOR AGENCY USE ONLY:</p> <p>PRIME CONTRACTOR: NS FISCAL YEAR: 2007-2008</p>						
1	1	EA	6630-363-0103-0	CHROMATOGRAPH GAS (AS DESCRIBED) GAS CHROMATOGRAPH/MASS SPECTROMETER AS DESCRIBED IN ACCORDANCE WITH THE ATTACHED DEPARTMENT OF TOXIC SUBSTANCES CONTROL SPECIFICATIONS DATED MARCH 10, 2008 AND QUOTATION # 20078202 DATED FEBRUARY 19, 2008.	388,404.2500	388,404.25
				Brand: THERMO FISHER SCIENTIFIC Model: DES HIGH RESOLUTION GC/MS		
2	2	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 0724592 PTV INJECTOR FOR TRADE GC. ADDITIONAL INJECTOR STD. TRADE 2000 DPFC.	8,329.2500	16,658.50
3	2	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 1147930 SUBAMBIENT OPTION FOR PTV INJECTOR, C02	2,145.4100	4,290.82
4	2	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 1178050 DUAL COLUMN INTERFACE KIT	1,960.4000	3,920.80
5	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 1193630 SPARE ION VOLUME B.	2,450.5000	2,450.50
6	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 1176900 SPARE ION SOURCE	10,292.1000	10,292.10

Sales and/or use tax to be extra unless noted above

Buyer <i>Lonnie Williams</i> LONNIE WILLIAMS	Phone 916-375-4586	BOC Number
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STATE OF CALIFORNIA

Department of General Services - Office of Procurement

PURCHASE ORDER CONTINUATION

Form GSOP 2-PIN (04/98)

Page 2

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7	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: FM101726 WILEY 7th ADDITION INCLUDING NIST 98.	10,782.2000	10,782.20
8	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 0739050 ON-SITE TRAINING	9,556.9500	9,556.95
9	1	EA	9090-250-0101-3	TRAINING SERVICE (AS DESCRIBED) CATALOG NUMBER: 101101010000023- CHILLER	4,278.5700	4,278.57
10	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 222-223700 TRANSFORMER 74015-54R POWERVAR PWR COND - 15kVA 3PHS	10,194.0800	10,194.08
11	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 1193570 DFS SPARES KIT MEDIUM	6,371.3000	6,371.30
12	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 119349-SSL TRACE GC S/SL CONCUMANLES KIT	2,340.2300	2,340.23
13	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 0953720 DATA SYSTEM TABLE	612.6300	612.63
14	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 701-491900 HP LASERJET 2605 COLOR PRINTER. 12PPM	673.8900	673.89
15	1	EA	7066-000-0002-0	PRINTER LASER (AS DESCRIBED) CATALOG NUMBER: 701-491900 250GB 7200 RPM INTERNAL HARD DRIVE FOR OPIEX DELL #341-2272	117.8200	117.82
16	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 701-491900 1GB MEMORY FOR DELL OPTIPLEX 745	141.3900	141.39
17	1	EA	6630-171-0086-6	CHROMATOGRAPH COMPONENT (AS DESCRIBED) CATALOG NUMBER: 701-488900 9 MONTH EXTENDED WARRANTY EX WAR PLAN - DFS (072XXX0)	22,054.5000	22,054.50
PO Miscellaneous Charges and Discounts						Dollar Value
BATCH ADJUSTMENT (DISCOUNT)						- 30,094.12
Total Value:						463,046.41

Department of General Services - Office of Procurement

Form GSOP 2-PIN (04/98)

Page 3

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<p><u>SPECIFIED BRAND AND MODEL:</u> FOR THE PURPOSE OF THIS ORDER ONLY THE SPECIFIED BRAND(S) AND MODEL(S) WILL BE ACCEPTED.</p>						
<p><u>TERMS AND CONDITIONS:</u> THE FOLLOWING ATTACHED DOCUMENTS ARE PART OF THIS PURCHASE ORDER. SPECIFICATIONS-DEPARTMENT OF TOXIC SUBSTANCES CONTROL DATED MARCH 10, 2008.</p>						
<p><u>F.O.B. Destination:</u> For the purpose of this order only F.O.B. Destination will be accepted.</p>						
<p><u>UNPACK AND SET IN PLACE</u> The vendor will be required to unpack and set the material in place as directed, remove all dunnage and instruct agency operating personnel in its use.</p>						
<p><u>SYSTEM DELIVERY AND INSTALLATION:</u></p>						
<p>DELIVERY INSTRUCTIONS:</p> <p>All deliveries shall be made during normal business hours Monday through Friday 8:00 AM to 4:00 PM.</p> <p>DELIVER TO:</p> <p>DEPARTMENT OF TOXIC SUBSTANCE CONTROL 700 HEINZ AVE. SUITE 100 BERKELEY, CA 94710 CONTACT: Tom Li or Kathleen Jones-Turner @ (510) 540-2214</p> <p>At least 30 days prior to the actual delivery of the system, the contractor must deliver to the Laboratory in writing, a list of installation requirements. The list shall include items such as operating environment, power requirements, special requirements, and site preparation details.</p> <p>Installation shall not occur until the complete GC/MS systems, including all software, peripherals and accessories are delivered. The contractor shall provide all necessary manuals for each system. The installation shall be done by a factory trained person.</p> <p>After installation, the contractor must demonstrate that the entire system is compliant to all the bid requirements.</p> <p><u>ACCEPTANCE TESTING:</u></p> <p>Acceptance testing shall start after the installation of the equipment. The acceptance testing shall consist of checking the equipment for compliance with the attached specification, during this time the equipment will also be used to run the routine samples. The duration of the acceptance testing period shall be five (5) days minimum and 30 days maximum.</p> <p>If the equipment fails to meet the specification listed herein during the initial 30 consecutive days after the start of the acceptance testing period, the contractor will be declared in default.</p> <p>Equipment shall not be accepted by the State and no charges associated with such equipment shall be paid by the State until the equipment has satisfactorily completed the acceptance tests.</p>						

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<p>Immediately upon successful completion of the acceptance tests, the State shall notify the contractor in writing of acceptance of the equipment and authorize appropriate payment as of the first day after the successful thirty day performance period.</p> <p><u>WARRANTY:</u></p> <p>The warranty shall start after the acceptance of the system. The system shall be covered by the warranty for a minimum of one (1) year. This one year requirement may require that the contractor extends the manufacturers standard warranty.</p> <p>The warranty shall include all parts and labor incurred by the contractor to maintain the system in new condition. The cost of labor shall include travel and per diem.</p> <p><u>VENDOR TO PROVIDE MANUALS:</u></p> <p>Vendor shall provide, upon request by the State, a copy of necessary functional manuals, adjustment manuals, schematic diagrams and parts catalogues. Parts for equipment are to be available for each model and available for purchase by the State at no greater cost than published list prices.</p> <p>This Purchase order has been registered into the state contract and procurement registration system (https://www.scps.dgs.ca.gov/). The registration number is 39600508303888.</p> <p><u>CHANGE ORDERS:</u></p> <p>Any Purchase Order resulting from this bid may be amended, modified, or terminated at any time by mutual agreement of the parties in writing. Change orders amending, modifying or terminating the Purchase Order, including any modifications of the compensation payable, may be issued only by the State Procurement Officer. All such change orders shall be in writing and issued only upon written concurrence of the supplier. Termination, as that term is used in this section, does not include termination for default of the supplier.</p>						

**Specifications for Thermo DFS
High Resolution Gas Chromatograph/Mass Spectrometer**

1) Deliverables

- a) The system shall comprise all items and services listed in quotation number 20078202 dated 02/19/2008. Each item or service provided by Thermo shall be new and shall have all of the features, capabilities, and functionality as described in the quote and in the Thermo documents *DFS High Resolution GC/MS Product Specifications* (PS30096_E 12/05C) and *Standard Quotation DFS Dioxin Package A*, dated September 2005.
- b) Installation shall include on-site training.
- c) Vendor shall provide a full one year warranty beginning at instrument acceptance.
- d) Delivery shall be made FOB Destination within ninety (90) days of receipt of order.
- e) Instrument shall be delivered to and installed at
Department of Toxic Substances Control
700 Heinz Avenue Suite 100
Berkeley, CA 94710
- f) Payment terms shall be 80% upon completion of installation and demonstration of compliance with specifications, and 20% upon completion of training.

2) Design Specifications

- a) The mass spectrometer shall be a Thermo DFS with the design and performance specifications detailed in the Thermo documents *DFS High Resolution GC/MS Product Specifications* (PS30096_E 12/05C) and *Standard Quotation DFS Dioxin Package A*, dated September 2005.

3) Data system

- a) Data system hardware for the DFS data system shall be a Dell Optiplex 620 MT or equivalent, and shall be configured as described in the Thermo documents *DFS High Resolution GC/MS Product Specifications* (PS30096_E 12/05C) and *Standard Quotation DFS Dioxin Package A*, dated September 2005, with the following exceptions:
 - i) 2 GB 400 MHz DDR2-SDRAM upgrade
 - ii) 250 GB SATA hard drive upgrade
 - iii) Color Laser Printer, HP 2605 or equivalent upgrade
- b) Data system shall include all cables and other items necessary to interface the data system to the GC, mass spectrometer, and autosampler.

4) AutoSampler

- a) The autosampler shall be a TriPlus XT, and shall have the features of the TriPlus autosampler as described in the Thermo documents *DFS High Resolution GC/MS Product Specifications* (PS30096_E 12/05C) and *Standard Quotation DFS Dioxin Package A*, dated September 2005, except as modified to accommodate dual GCs.
- b) Autosampler shall include all parts necessary to connect the autosampler to two GCs and the data system.

5) Gas Chromatograph

- a) Gas chromatograph shall be a Trace GC Ultra 2000, configured with electronic flow control, a split/splitless injector, and a PVT injector.

b) GC will include all parts necessary to connect the GC to the mass spectrometer.

6) Instrument control and data analysis software

- a) Instrument control and analysis software for the DFS shall include the core XCalibur instrument control and data acquisition and processing software for the DFS, and the optional TargetQuan software, as detailed in the Thermo documents *DFS High Resolution GC/MS Product Specifications* (PS30096_E 12/05C) and *Standard Quotation DFS Dioxin Package A*, dated September 2005.
- b) Data analysis software shall be able to read and process Thermo data files from its older UNIX-based data systems.

7) Performance Specifications

- a) Before ECL accepts the instrument, the vendor will demonstrate that the DFS meets the "Installation Specifications" as detailed on Pages 6 and 7 of the Thermo document *Standard Quotation DFS Dioxin Package A*, dated September 2005, and reiterated in part i) below, and ECL's "Linearity and Stability" specifications listed in part ii) below.

i) Installation Specifications

(1) Mass Measurement Accuracy

- (a) Mass accuracy in peak matching mode will be equal to or better than 2 ppm. This will be demonstrated at a resolution of 5,000 (10% valley definition) on m/z 181 from PFK using m/z 169 and 193 of PFK as reference masses.

(2) Maximum System Resolution

- (a) The maximum adjustable resolution in static magnet mode will be determined on a peak triplet of $^{12}\text{C}_{10}\text{H}_8\text{N}^+$, $^{12}\text{C}_{10}^{13}\text{CH}_9^+$, and $^{12}\text{C}_{11}\text{H}_{10}$ generated by EI ionization of a mixture of methyl quinoline and methyl naphthalene. The resolution will be equal to or greater than 60,000 (10% valley definition).

(3) GC/MS Sensitivity for 2,3,7,8-TCDD

- (a) An injection of 100 fg of native 2,3,7,8-TCDD and 5 pg $^{13}\text{C}_{12}$ 2,3,7,8-TCDD will give a signal-to-noise ratio $> 800:1$ on unsmoothed raw data for mass 321.8930, using the following experimental conditions.
 - (i) Column = TR5-MS (30 m x 0.25 mm x 0.1 μm film)
 - (ii) Noise = 4 standard deviations (4σ)
 - (iii) Native TCDD masses measured = 319.8960 and 321.8930
 - (iv) $^{13}\text{C}_{12}$ TCDD masses measured = 331.9362 and 333.9333
 - (v) MID mode lock at resolution 10,000 (10% valley)
 - (vi) Lock mass/calibration mass = 313.9833 and 363.9802.
 - (vii) GC operated in constant flow mode and at conditions designed to achieve a GC peak width at half height of approximately 2 sec.

ii) Linearity and Stability

- (1) In addition to the "Installation Specifications" listed above, the vendor shall also demonstrate the ability of the DFS to meet the additional linearity specifications listed below.

- (a) The linearity of the mass spectrometer shall be demonstrated by injecting a six point calibration curve of all 17 2,3,7,8-substituted congeners and their $^{13}\text{C}_{12}$ -labeled analogs, and measuring the relative standard deviations (RSDs) of the

relative response factors (RRFs) and the isotope ratios using the following experimental conditions.

- (i) Solutions shall be injected using splitless mode onto either a 30 m or 60 m DB-5MS or equivalent column.
 - (ii) The concentration range of the six solutions shall cover the range corresponding to CS0.5 (equivalent to $\frac{1}{2}$ of the analyte concentrations in CS1) and CS1 through CS5 as defined in Table 4 of EPA Method 1613 Rev B (Cambridge Isotope Laboratories catalog number EDF-9999 or equivalent).
 - (iii) Mass spectrometer will be operated in SIM mode, at a resolution of 10,000, and all ions, as required by Method 1613 Rev B, will be monitored in 5 groups.
 - (iv) The RSDs of the RRFs for each of the 17 congeners for all six points must be less than or equal to 20%. Relative response factors will be calculated as shown in Method 1613 Rev B; page 26.
 - (v) The isotope abundance ratios for all 17 congeners for all six calibration points must be within $\pm 15\%$.
- (2) In addition to the "Installation Specifications" listed above, the vendor shall also demonstrate the ability to the DFS to meet the additional stability specification listed below.
- (a) The stability of the mass spectrometer shall be demonstrated by analyzing over a 48 hour period, a minimum of four injections of CS3.
 - (i) When compared to the relative response factor from the original calibration curve created in part ii) (1) above, the relative percent difference must not exceed 20%, and all isotope abundance ratios must be within $\pm 15\%$.

